

August-02-12 11:34:04 AM

Item ID: D2521

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Bearpaw 205

Stop *NS2*

Start Date: 7/27/12 **Start Qty:** 2.00

2

Cust Item ID:

Required Date: 9/21/12 **Req'd Qty:** 2.00

2

Customer:

Reference:

Approvals: Process Plan: MJS Date: 12/08/13

Tooling: _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run ^W Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2521	Rev J

120

0.00

120

FLOW WATER JET

Waterjet

Memo

0.00

FLOW CNC Waterjet

Cut Blank as per D2521 blank file

130

0.00

130

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

- 1-Inspect material for defects or damage prior to machining
- 2-Machine as per Folio and Dwg D2521 Identify as D2521
- 3-Deburr

140

0.00

140

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other		

Work Order ID 88511

August-02-12 11:34:04 AM

88511

Page 2

Item ID: D2521 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Bearpaw 205
 Start Date: 7/27/12 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 9/21/12 Req'd Qty: 2.00 ***2*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150	QC8- Inspect parts - second check	0.00							
150									
QC	Memo	0.00							
Quality Control									

160	Identify as per dwg & Stock Location: _____	0.00							
160									
Packaging	Memo	0.00							
Packaging									

170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.00							
Quality Control									

OK 12/09/20

PDP 96295

2x *Sp*
12-9-21

12/9/24

MW 12-09-21

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
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Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Picklist Print

August-02-12 11:34:04 AM

Page 1

Work Order ID: 88511

Parent Item: D2521

Parent Item Name: Bearpaw 205

Start Date: 7/27/12

Required Date: 9/21/12

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP Rev:A 08-10-01 New Manufacturing Method JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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MUHMWB10		Purchased	No				sf	105.8100		14.736842			
UHMW 1" Black										15.0			

Jun 28-12

Location	Loc Qty	Loc Code
MAT018	82.7	
120972	1	
121346	27.1	
121954	12.8	
122286	14.3	
122575	27.5	
MAT019	1.5	
118814	1.5	
ST052	21.60999474	
121277	12.8	
121278	8.80999474	

22722

122722

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
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DART AEROSPACE LTD		Work Order:	88511
Description: Bearpaw		Part Number:	D2521
Inspection Dwg: D2521	Rev: J	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension			Actual Dimension	Accept	Reject	Method of Inspection	Comments
Dim	Min	Max					
A	0.260	0.266	0.260	✓		VERN	PHD-01
B	0.90	0.96	0.932	✓		"	"
C	0.27	0.330	0.300	✓		MIC	PHD-09
D	0.470	0.530	0.500	✓		VERN	PHD-01
E	21.740	21.760	21.750	✓		M TAPE	PHD-11
F	0.72	0.780	0.750	✓		VERN	PHD-01
G	0.35	0.410	0.374	✓		"	"
H	11.490	11.570	11.500	✓		M TAPE	PHD-01
I	3.41	3.47	3.430	✓		VERN	PHD-01
J	11.790	11.810	11.800	✓		M TAPE	PHD-11
K	9.47	9.53	9.500	✓		"	"
L	7.190	7.210	7.200	✓		"	"
M	6.910	6.970	6.940	✓		"	"
N	44.47	44.530	44.500	✓		"	"
O	6.590	6.650	6.620	✓		"	"
P	0.940	0.980	0.965	✓		VERN	PHD-01
Q	18.97	19.03	19.000	✓		M TAPE	PHD-11
R	0.350	0.410	0.380	✓		VERN	PHD-01
S	0.740	0.780	0.760	✓		"	"
T	0.240	0.280	0.252	✓		"	"
U	0.370	0.410	0.388	✓		"	"
V	0.740	0.780	0.745	✓		"	"
W	0.740	0.780	0.760	✓		"	"

Measured by: <u>PO</u>	Audited by: <u>AK</u>	Prototype Approval:	N/A
Date: <u>12/09/19</u>	Date: <u>12/09/20</u>	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	03.09.22	New Issue P/O D205-564-011 & D430-688-011	KJ/RF	
B	05.06.15	Dimensions and tolerances changed	KJ/RF	
C	06.08.31	Dimensions updated per D2521 Rev. J	KJ/JLM	

DART

DESIGN #	DRAWN BY CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED #	DRAWING NO. D2521	REV. J SHEET 1 OF 3
DATE 06.07.28	TITLE 205 BEARPAW		SCALE NTS
A	95.11.28	NEW ISSUE	
B	96.01.11	SHOW BENDING MOVE HOLES	
C	96.01.29	ADJUST HOLE LOCATION FOR TOOLING	
D	96.05.14	ADJUSTED BEAR PAW THICKNESS	
E	96.12.18	43.500 WAS 46.750	
F	97.05.07	ADDED REAR POCKET, MOVED HOLES	
G	98.08.06	ADD C'BORE AND CHAMFER EDGES	
H	03.01.30	CHANGE GEOMETRY FOR RUN-ON LDG.	
I	05.05.20	REMOVE BEND, CHANGE TOLERANCES	
J	06.07.28	CHANGE FOR FLOAT SKIDTUBE	

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
88511 MJS
12/08/13

RELEASED

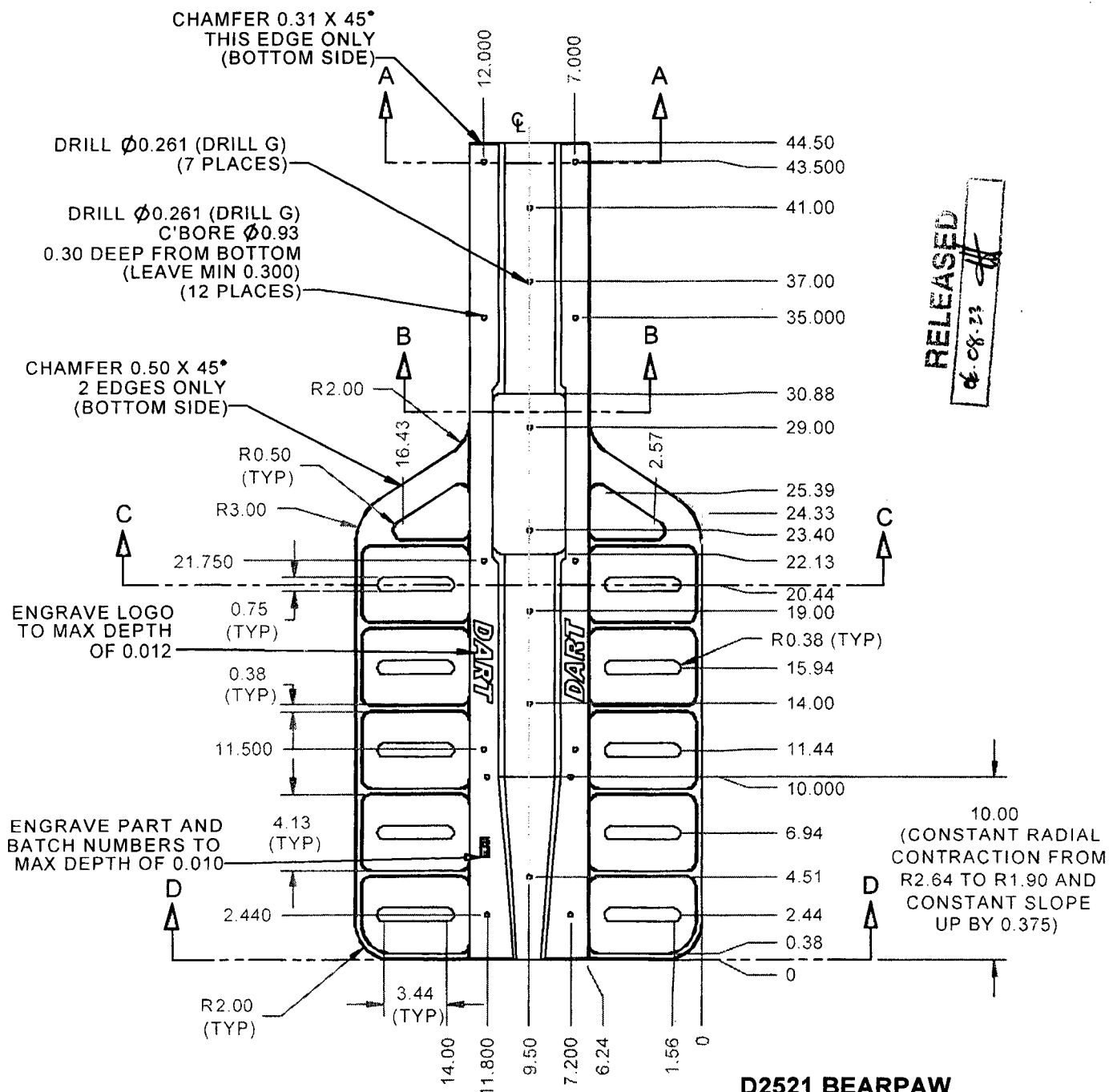
06.08.23 #

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DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. J
DATE		D2521	SHEET 2 OF 3
		TITLE	SCALE
		205 BEARPAW	1:8



D2521 BEARPAW

NOTES:

- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.000 THICK (MACHINE TO 0.950)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.030
- 6) PART IS SYMMETRIC ABOUT \varnothing

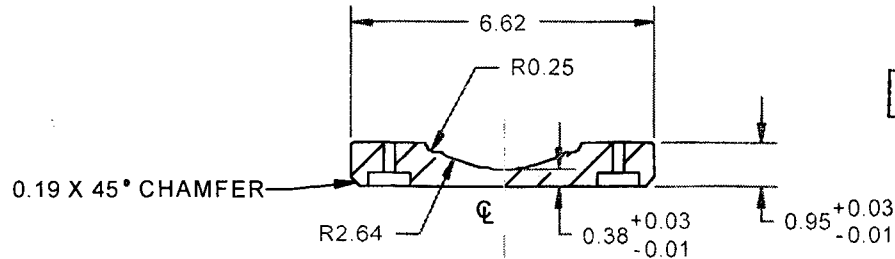
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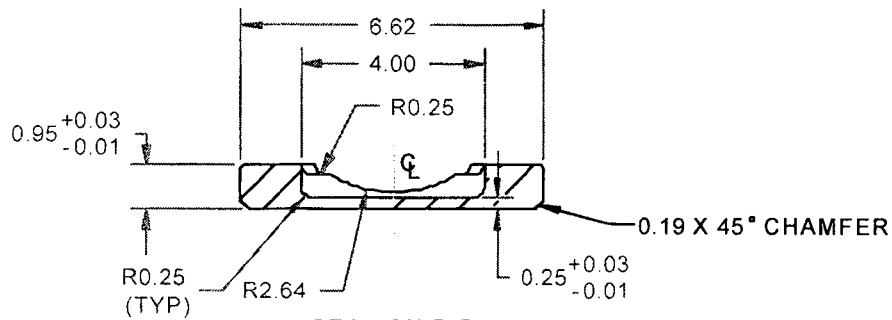
82511



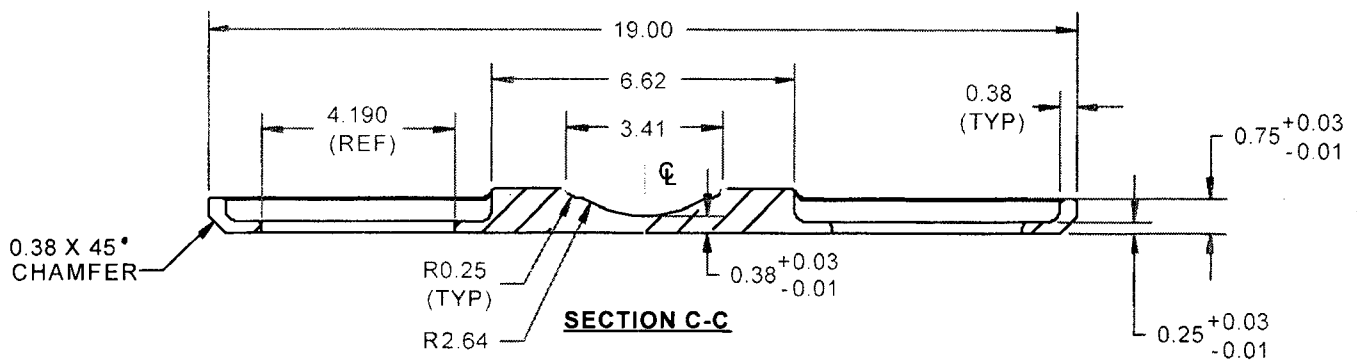
DESIGN	DRAWN BY	DART AEROSPACE LTD	
	CB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. J
CP		D2521	SHEET 3 OF 3
DATE		TITLE	SCALE
06.07.28		205 BEARPAW	1:4



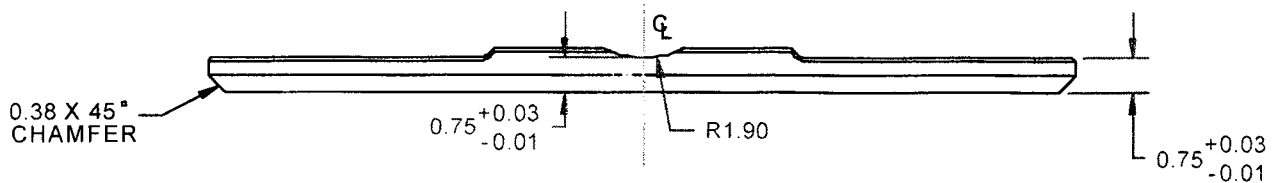
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

RELEASED
06.08.23

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